***Guidelines for Using the PSW-A v1.0 Software***

What can be entered into the Broad Ability cells on the “g-value Data Entry” tab?

1. Make every attempt to enter broad ability composites into each of the seven cells
   1. A minimum of two qualitatively different indicators are needed to represent a broad ability. Ideally, the broad ability should be cohesive.
   2. If there is a statistically significant difference between or among the subtests that comprise the ability, then follow up on the lower score if it is suggestive of a weakness or deficit.
      1. If the lower score is not suggestive of a weakness or deficit, then enter the composite, even if it is not cohesive (further testing may be done at your discretion)
      2. If the lower score is suggestive of a weakness or deficit and follow up on the lower score suggests a deficit in a narrow ability (with the divergent score average or better), then additional data may be gathered to support the *higher* score for entry into the broad ability cell (especially if the narrow ability deficit is in a cognitive ability or process that is considered to have a detrimental impact on the academic area(s) of weakness. For example:
         1. In the area of Gsm, Ga, and possibly Gs (gather additional data from teacher, parent, work samples, and/or previous evaluations; you may also administer other subtests); when converging data support the higher score, enter it (or a narrow ability composite) into the appropriate cell. If the higher score is not supported by other data sources or if data are not conclusive with regard to narrow ability underlying the higher score, then the lower composite should be entered (even if it is a narrow ability composite).
         2. Note that Gsm, Ga, and Gs are quite narrow, consisting of two or three narrow abilities that are commonly measured on cognitive and achievement tests.
         3. Gs would be an exception here only if RS and WS were considered.
      3. In the area of Gc, Glr, Gv and possibly Gf, additional data from standardized measures should be obtained to demonstrate convergence in two qualitatively different indicators of the ability. Other data sources may also be considered. In other words, in the areas of Gc, Glr, and Gv, a broad ability composite must be entered (not a subtest score or narrow ability composite). That is, the composite must consist of two qualitatively different indicators simply because Gc, Glr, and Gv are the broadest of the broad abilities typically measured by commonly used ability batteries and, therefore, a broad ability composite can be obtained with minimal effort. Note that the recommendation in 1bi above applies here as well.
      4. If two qualitatively different indicators of an ability suggest weak or deficient performance and one narrow ability indicator suggests average performance, then enter the composite consisting of the two lower scores, as it is most likely the best representation of ability in that broad ability domain – particularly if the domain only consists of three narrow abilities (e.g., Gf).
      5. If two qualitatively different indicators of an ability suggest at least average performance and one indicator suggests weak or deficient performance, then you may choose to enter the broad ability composite and follow up on the lower score. If the second measure of the lower score (and/or additional data sources) suggest a narrow ability weakness or deficit, consider the narrow ability estimate as an area of cognitive processing weakness.
      6. If two qualitatively different indicators of an ability suggest weak or deficient performance and two qualitatively different indicators suggest at least average performance, then enter the composite consisting of the two higher scores and consider using the composite consisting of the two lower scores as the (or one of the) cognitive weaknesses in the student’s pattern of performance. Note that this can only happen in the areas of Gc, Glr, and Gv (and Gs, if RS and WS are considered) b/c these are the only broad abilities with a four or more narrow abilities (and this breadth of narrow abilities is commonly measured by psychoeducational assessment instruments – e.g., cognitive batteries, speech-language tests, memory batteries).
2. You may enter a composite from any cognitive, neuropsychological, achievement, memory, speech-language or special purpose test. When an evaluation of cognitive abilities and processes is conducted using test or subtests from more than one battery, it is recommended that practitioners follow the guidelines of Flanagan, Ortiz, and Alfonso (2013).
3. You may enter cross-battery assessment (XBA) composites generated by the CHC Analyzer tab of the Data Management and Interpretive Assistant (DMIA v2.0; Flanagan, Ortiz, & Alfonso, 2013)
   1. The broadest of the broad abilities should be represented by two qualitatively different indicators (i.e., Gc, Glr, Gv).
   2. The abilities of Gs, Ga, and Gsm may be represented by a single narrow ability if necessary (due to the limited number of narrow abilities that comprise the broad areas and the limited range of narrow abilities in these broad areas measured by commonly used instruments).
4. What about executive functions?
   1. If you have a measure (or measures) of executive functions (EFs) that is unique to the individual’s pattern of performance and an EF score is representative of a weakness or deficit, then it may be entered into the cognitive weakness section on the xxx tab (if your country, state, or district considers EFs to be cognitive “abilities” or cognitive “processes”).
   2. If EFs are not considered to be cognitive abilities or processes, then be sure to consider the importance they have on academic performance and treat them as important facilitators/inhibitors to academic success in the SLD identification process.
5. The Gc Caveat for English Language Learners. The following procedures described in this section are predicated on the research which underlies the nature of score attenuation that occurs when tests of culture and language are given to individuals with less cultural exposure and less langauge proficiency than the individuals who comprise the norm sample. These issues are evident in and via use of the selected “difference” range as operationalized in the C-LIM. Since performance that falls within the depicted band is indicative of performance of individuals who are non-disabled and of average ability or better, use of an fairer estimate of general ability as well as an unbiased Gc score is necessary since the effect of culture and language cannot be separated from the measurement of culture and language (i.e., Gc). Thus, if performance is within the selected band, it can be assumed that performance is at least average, possibly better, and therefore justifies use of a value for overall ability that is not influenced by this score (e.g., nonverbal score) and a value for Gc itself that is in fact commensurate with this inference (i.e., SS=90). Within and only for the purposes of the PSW-A, use of a nonverbal IQ or other language/culture reduced index/composite as well as an alternative value for Gc are procedures that are intended to provide the correct meaning with regard to the “sufficiency” of the score, as it contributes to the g-Value, as well its meaning with respect to score magnitude that reflects “average” ability as it contributes to the IA-e. By adhering to these procedures and administering them in full with all ELLs, the process will result in a nondiscriminatory evaluation process that will not unfairly reduce the student’s actual Gc capabilities or attenuate calculation of the IA-e and thereby help prevent failure to identify SLD or misidentification of ID.
   1. STEP 1: Because Gc is by definition, culture and language (e.g., Listening comprehension, lexical development, cultural knowledge, grammatical sensitivity, vocabulary, etc.), the measurement of culture and language cannot be separated from tests that are designed to measure culture and language and thus, Gc scores for ELLs remain subject to biased interpretation when compared to test norms. Note that this does not apply to any other ability domain, only Gc. That is, whereas test scores may accurately indicate the examinee’s current level of English language proficiency and acculturative knowledge, they do so only as compared to native English speakers, not other ELLs. Because the effects of cultural exposure and language proficiency are not directly measured by other abilities (e.g., Gv, Gf, Gsm, etc.), once scores for such domains have been established as valid, they can be evaluated against the performance of a tests usual norms. But for Gc, comparison of performance in this domain using a test’s norms remains unfair when assigning meaning to the obtained value. In addition, any composite or index that is based in full or part on Gc ability will also be attenuated to a certain degree. For example, research indicates that ELLs tend to score about 12-15 points lower on Full Scale IQ than native English speakers and from 1.0 to 1.3 SD below the mean of native English speakers (e.g., SS=80-85) on tests of Gc. Therefore, when using the PSW-A in evaluating an ELL for SLD, it will be necessary to ensure that the meaning ascribed to the values being used remain as unbiased as possible so they do not result in discriminatory interpretations or outcomes. For example, although measured performance in the Gc domain may in fact be valid (indicating ability level relative to native English speakers), the meaning of the actual or obtained value cannot be described fairly by classification schemata that are based on the tests normative mean (e.g., SS=100). That is, a score of 75 on Gc may indicate “deficient” performance relative to the test’s norms, but is considered “average” when compared to other ELLs. Yet, use of a score of a magnitude of 75 has an implicit psychometric value that does equate to deficiency. Thus, use of the actual value may lead to discriminatory analyses and interpretation. Within the PSW-A, the notions regarding the meaning of “sufficiency” which is used in calculating the g-Value and the meaning of an “average” score used in calculating the IA-e are areas in which this type of potential problem can result. To account for these two issues, the following procedures are recommended.
      1. Following the procedures specified in the previous section regarding the process for deciding which broad or narrow ability composite score to be used in the PSW-A, begin by entering the student’s most appropriate Gc score in the space provided on the g-Value Data Entry tab.
      2. Next, to determine whether Gc should be designated as sufficient (“yes” button) or insufficient (“no” button) on the g-Value Data Entry tab, examine the High/High cell of the C-LIM and:
         1. If the aggregate value in the High/High cell in the C-LIM is within or higher than the selected “difference” band, indicate Gc as sufficient on the tab by selecting the “Yes” option and for all analyses.
         2. If the aggregate value in the High/High cell in the C-LIM is below the selected “difference” band, indicate Gc as not sufficient on the tab by selecting the “No” option for all analyses. In this case, Gc may also be used on the 3A. PSW Data Entry tab as a “Cognitive Weakness” as may be appropriate.
         3. If the results are consistent with a pattern of strengths and weaknesses that supports SLD, no further analyses are necessary.
         4. If the results are NOT consistent with a pattern of strengths and weaknesses that supports SLD or if the IA-e could not be calculated because it was below SS=85, and if Gc was deemed to be sufficient, analysis should proceed to Step 2.
   2. STEP 2: In cases where the aggregate score in the High/High cell in the C-LIM is within or higher than the selected “difference” band and therefore deemed to be sufficient (as in the case of ii.1. above), use of the actual or obtained Gc index or composite will not affect calculation of the g-Value since the g-Value is based only on whether the abilities are indicated as being sufficient or not and not the actual magnitude of the scores. Similarly, when the value of all of the broad ability scores designated as sufficient are within the average range or higher (SS>90), entry of the actual or obtained Gc index or composite (even when low, e.g., SS=75), will not significantly or adversely affect the calculated IA-e value. However, when the value of two or more of the other broad ability scores designated as sufficient are comparatively low, derivation of the IA-e may be unfairly and adversely affected. This will occur infrequently and only in cases when a “ low” Gc score for an ELL is entered as obtained into the tab, despite having been deemed to be “sufficient.” Consequently, this situation may have a discriminatory effect on the magnitude of the IA-e and reduce unfairly the likelihood of finding SLD for an ELL while conversely increasing the possibility of being mischaracterized as ID or “slow learner.” To avoid the potential discriminatory and attenuating effect on the derivation of the IA-e, the following procedure is recommended.
6. If prior analyses in Step 1 did not result in a pattern consistent with SLD, or if the IA-e could not be calculated because it was below SS-85, and if Gc has been deemed “sufficient,” then,
   * + 1. Enter and use an alternative score for the IA-e in the space provided that is less or unaffected by Gc, for example a nonverbal IQ or other language/culture reduced index or composite.
       2. If the SLD pattern is found, further analyses are unnecessary and the student should be considered as having SLD.
       3. If the SLD pattern is NOT found, analysis should proceed to Step 3.
7. STEP 3: Use of a nonverbal type score provides some correction for the attenuation that may occur when the Gc score, even when deemed sufficient, is still low enough to affect the IA-e. However, an alternative nonverbal score may not wholly ameliorate the problems particularly when the major nonverbal domains such as Gv or Gf are comparatively low average as well. When the scores designated as sufficient tend to hover around the lower end of the average range (e.g., SS=90), or when there is a small number of sufficient abilities, use of a nonverbal score will not necessarily address the issue of Gc for ELLs simply by having been excluded. Consider for example, that Gc has the highest g-loading of all broad abilities and is an important component of school-based learning. When it is sufficient, it plays a large role in nearly all areas of academic skill development. Thus, if it is excluded in terms of both magnitude and meaning in the PSW-A analyses, the prior procedures may not provide a full and fair solution to the problem of discriminatory or biased interpretation. Although cases such as this are likely to be extremely rare, a final procedure is recommended to ensure that all aspects of potential bias have been dealt with in a satisfactory manner and that all appropriate efforts have been made to prevent an ELL from being unfairly regarded as not having SLD or worse yet as being intellectually disabled. To account fully for both the meaning of Gc performance as well as the meaning of the magnitude of the score, and where prior analyses have not indicated a pattern of strengths and weaknesses consistent with SLD, the following procedure is recommended.
8. If use of the actual or obtained value for Gc is deemed sufficient and resulted in an IA-e that cannot be calculated (as in Step 1), and if use of a nonverbal score in lieu of the IA-e did not reveal a pattern of strengths and weaknesses consistent with SLD (as in Step 2), then:
   * + 1. Enter an alternative value for Gc that corresponds to the minimum value necessary to establish it as being within the “average” range of performance (i.e., SS=90) and re-run analyses using the IA-e.
       2. If the SLD pattern is found, student should be considered SLD.
       3. If the SLD pattern is NOT found, student should NOT be considered SLD.

Note that in this final step, use of the alternative nonverbal score from Step 2 is not necessary because the change in the magnitude of Gc in this Step will correct for potential attenuation of the IA-e. In addition, in all cases, the actual or obtained Gc value for the student should be reported in a report of evaluation, albeit the correct meaning should be ascribed, and it should be used for the purposes of educational planning and intervention.

DECISION FLOWCHART FOR DETERMINING BROAD ABILITY SCORE TO BE ENTERED INTO PSW-A

Broad Ability Composite (comprised of two qualitatively different narrow ability indicators)

Lower score suggests weakness

NO

Enter Broad ability composite score

Examine composite scores

Composite is cohesive

Enter Broad ability composite score

Enter Broad ability composite score

Enter Narrow ability composite score

RECOMMENDED

Exercise clinical judgment and other data to support either a strength or weakness as indicated by convergence of information

NO

NO Broad or Narrow Ability Composite Formed (three or four subtests do not generate a cohesive ability composites)

Either conduct follow up testing on divergent score OR gather additional qualitative data to support score. Enter narrow ability score (subtest or composite, depending on follow up) into g-value tab if narrow ability weakness will be used as cognitive ability or processing weakness on subsequent tab

OPTIONAL

RECOMMENDED

Conduct follow up testing on divergent score to determine if narrow ability may be area of weakness

WEAKNESS

STRENGTH

Enter Narrow Ability Composite into 3A. PSW Data Entry tab as “Cognitive Weakness” as appropriate

Enter Narrow Ability Composite into 2A. g-Value Data Entry tab

NO

Narrow Ability Composite-Strength AND Narrow Ability Composite-Weakness (four subtests)

YES

NO

Narrow Ability Composite-Weakness (comprised of same two narrow ability indicators AND divergent score is average or higher)

YES

YES

YES

YES

NO

Enter Narrow ability composite score

RECOMMENDED

Conduct follow up testing on divergent score to determine if narrow ability may be an area of weakness

NO

Narrow Ability Composite-Strength (comprised of same two narrow ability indicators AND divergent score is below average or lower)

Broad Ability Composite-Weakness (comprised of two different narrow ability indicators AND divergent score is average or higher)

Either conduct follow up testing on divergent score OR gather additional qualitative data to support score. Enter narrow ability score (subtest or composite, depending on follow up) into g-value tab if broad ability weakness will be used as cognitive ability or processing weakness on subsequent tab

NO

OPTIONAL

Broad Ability Composite-Strength (comprised of two different narrow ability indicators AND divergent score is below average or lower)

Follow up testing on lower score

YES

Enter Broad ability composite score

DECISION FLOWCHART FOR Gc and IA-e WHEN USING PSW-A WITH ELLs

Enter actual/obtained Gc composite score as deemed appropriate from prior specified guidelines

Step 1: Is the aggregate value for the “high/high” cell in the C-LIM within the selected difference band? (touches or exceeds the shaded area corresponding to the selected degree of difference range)

Student is likely SLD, no further analyses necessary

YES

Did the PSW-A Summary indicate a pattern consistent with SLD?

YES

Was the IA-e calculated by the PSW-A (SS > 85)?

Step 3. Enter alternative Gc score that reflects minimum level of “average” ability, i.e., SS=90 and re-run analyses using IA-e

NO

Step 2. Enter alternative IA-e score in PSW-A (e.g., nonverbal IQ/Index/Composite) and re-run PSW-A analyses

NO

Did the PSW-A indicate a pattern consistent with SLD?

NO

Did the PSW-A Summary indicate a pattern consistent with SLD?

NO

Was the IA-e calculated by the PSW-A (SS > 85)?

NO

NO

Indicate Gc ability as “insufficient,” and conduct PSW analyses

Indicate Gc ability as “sufficient,” and conduct PSW analyses

YES

YES

YES

YES

Student is unlikely to be SLD and other possibilities should be considered, e.g., slow learner or intellectual disability as may be supported by additional evidence.